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Case Report

Acute occlusion of the right superficial femoral artery following endovascular stent grafting of the right common iliac artery

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Abstract

Percutaneous transluminal angioplasty (PTA) is a safe and effective procedure for the treatment of aortoocclusive disease. However, procedural complications and stent restenosis may occur. Distal embolization is one of the complications that require urgent intervention. Here, we present a 70-year-old male patient presenting with severe pain and loss of motor function of the right leg, following right common iliac artery balloon expandable stent implantation. Embolization of the right superficial femoral artery occurred as an acute complication of the surgery. The patient's past medical history included lung cancer and an operative procedure on bowels. Emergency embolectomy of the right superficial femoral artery resulted in the reversal of the symptoms. Randomized studies have shown that thrombolysis is as effective as surgery. Nevertheless, embolectomy or thrombectomy is accepted as the gold standard treatment with low morbidity and mortality rates. In this case, we chose to perform an embolectomy instead of treating the patient with local thrombolytic agents; following the procedure, there was complete resolution of ischemia and motor function loss.

Keywords

Endovascular Stenting; Acute Oclusion; Embolectomy

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Introduction

Endovascular balloon expandable stent implantation in the treatment of atherosclerotic iliac artery stenoses is becoming widely used. Numerous studies estimate the complication rate to be 8-12%[1]. Distal embolisation is one of the complications that require urgent intervention. Randomized studies have shown that thrombolysis is as effective as surgery. Thrombolytics have been used in the treatment of native artery and graft thromboses complicated by acute leg ischemia as an alternative to surgery and safer option [2,3]. Alongside this, embolectomy or thrombectomy is accepted as the gold standard treatment option with low morbidity and mortality rates [4,5].

Here, we represent a 70-year-old male patient presenting with severe pain and loss of motor function of the right leg due to embolization of the right superficial femoral artery, following right common iliac artery balloon expandable stent implantation. Balloon expandable stent implantation was the choice of treatment despite total occlusion of the right common iliac artery which was a TASC D (TransAtlantic Inter-Society Consensus stratification) lesion. This was the preferred treatment option as the patient had a history of lung cancer and an operative procedure of the bowels, making the patient a high-risk candidate for surgery. Emergency embolectomy of the right superficial femoral artery enabled removal of the embolus material andresulted in the reversal of the symptoms.

Case Report

A 70-year-old male patient who was being followed up in the outpatient clinic was admitted to the vascular surgery ward having presented with claudication at fifty meters. A physical examination revealed absent pulses on the right lower extremity. However, there was no sign of an ischemic change in the extremity. He has been smoking two packs per day for twenty years. He also had a history of chronic obstructive pulmonary disease, treatment for lung cancer as well as an operative procedure on the bowels. Blood tests and echocardiogram values were all within the normal range. DSA (Digital Subtraction Angiography) revealed total occlusion of the right common iliac artery (CIA). Right common femoral artery (CFA) was filled by the collateral vessels proximally. Right superficial femoral artery (SFA), popliteal artery and distal vessels were patent (Figures 1, 2, 3).

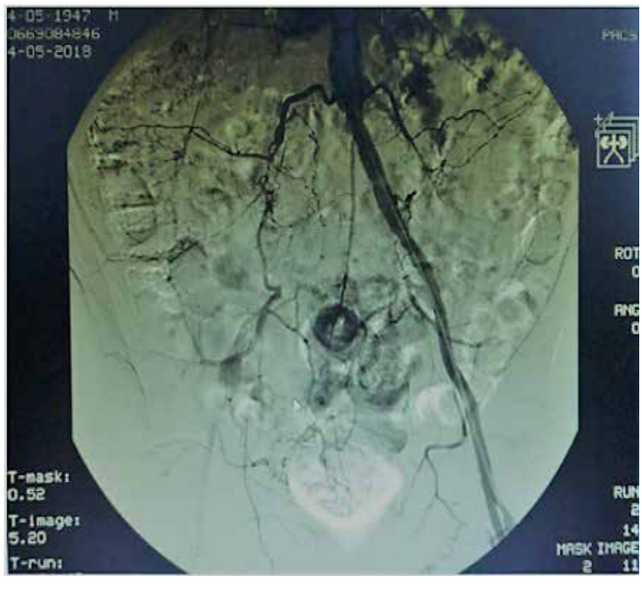

Figure 1. DSA showing total occlusion of the Right Common Iliac Artery

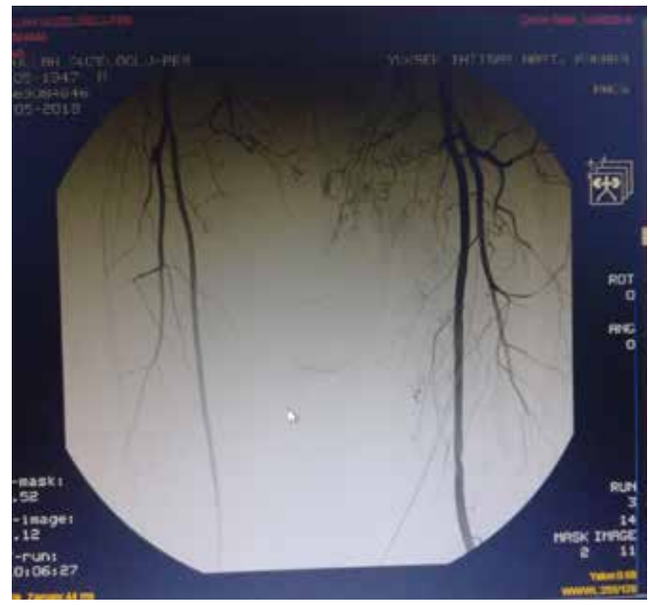

Figure 2. Blood flow to the Right Common Femoral Artery supplied by the collaterals

Figure 3. DSA imaging demonstrating the patency of the Right Superficial Femoral Artery and Popliteal Artery

Open surgery was deemed high risk due to the patient's comorbidities, and so balloon expandable stent implantation of the right common iliac artery was performed (Figure 4). Ten minutes postoperatively, the patients complained of severe pain distal to the right knee with pallor and motor function loss distal to the ankle. DSA showed an absence of blood flow distal to the right knee, findings compatible with an embolus (Figure 5). Emergency embolectomy was planned. Following the right femoral incision, CFA (Common femoral artery), SFA (Superficial femoral artery) and DFA (Profunda femoris artery) were encircled with tapes. One milliliter of heparin was administered and vascular clamps were placed onto the arteries. Arteriotomy was performed. The antegrade flow was good after removal of the clamp. However, there was no backflow when the distal clamp was removed. 3 F (Fogarty) embolectomy catheter was advanced up to 45 cm twice which enabled the removal of the embolus debris that was 2x0.5 cm in size (Figure 6). The backflow was good. The arteriotomy was repaired using a 5/0 prolene suture. Control DSA revealed normal blood flow into the distal vessels (Figure 7).

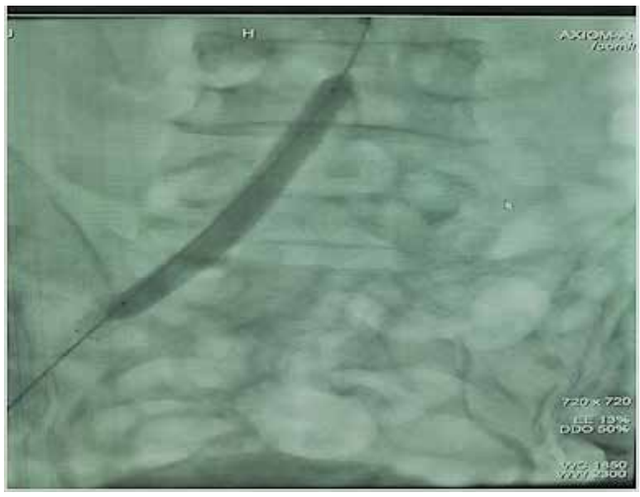

Figure 4. Balloon expandable stent implantation of the Right Common Iliac Artery

Figure 5. Embolus at the knee level

Figure 6. Embolus debris 2x0.5 cm in size

The patient was heparinized; the activated clotting time (ACT) level was maintained at 200-250 seconds in the intensive care unit. Dual antiplatelet treatment was started (clopidogrel and acetylsalicylic acid). All distal pulses were palpable and the patient was discharged onthe third day postoperatively. The patient was free of claudication on the sixth postoperative month.

Figure 7. Control DSA showing normal blood flow into the distal vessels

Discussion

Percutaneous transluminal angioplasty is a safe and effective procedure for the treatment of aortoocclusive disease and is becoming more widely used. On the other hand, procedural complications, stent restenosis, and distal embolization may occur. Distal embolization requires urgent intervention. The incidence of distal embolization following iliac and femoropopliteal angioplasty or stenting is 2.3-4.5% [6,7].

Primary endovascular revascularization is recommended for TASC A and B lesions. However, surgical revascularization is the choice of treatment for TASC C and D lesions in patients with suitable preoperative risk and appropriate conduit arteries [8]. The effect of such factors as patient comorbidity, patient choice, and the experience of the patient on decision making is emphasized. We chose to perform endovascular revascularization in our patients due to high surgical risk.

A study of 75 patients undergoing PTA due to iliac occlusion reported distal embolization in 18 (24%) of the patients [9]. To date, embolectomy, bypass, and amputation have so far been used in patients with iliac artery occlusion. Randomized studies have revealed that thrombolysis is generally as effective as surgery [2,3,10,11]. Local thrombolysis may be a good option especially in appropriately selected patients [10,11]. Nevertheless, embolectomy or thrombectomy is accepted as the gold standard treatmentand has low morbidity and mortality rates.

In this case, embolectomy was the chosen treatment option, rather than a local thrombolytic agent, due to the possibility of a debris embolus occurring in a patient who was evaluated as high risk for surgery and had undergone angioplasty and stenting. Embolectomy resulted in total improvement of the patient's symptoms including motor function loss.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964

Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest
None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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